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(58) Field of Search

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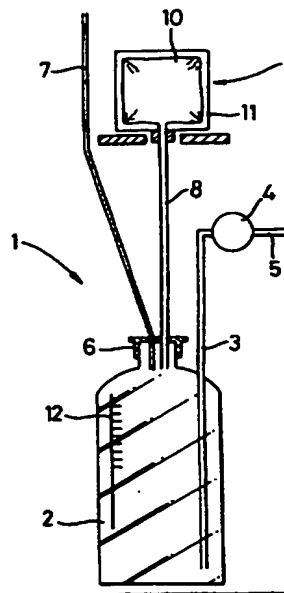
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## (54) Apparatus for dispensing beverage syrups

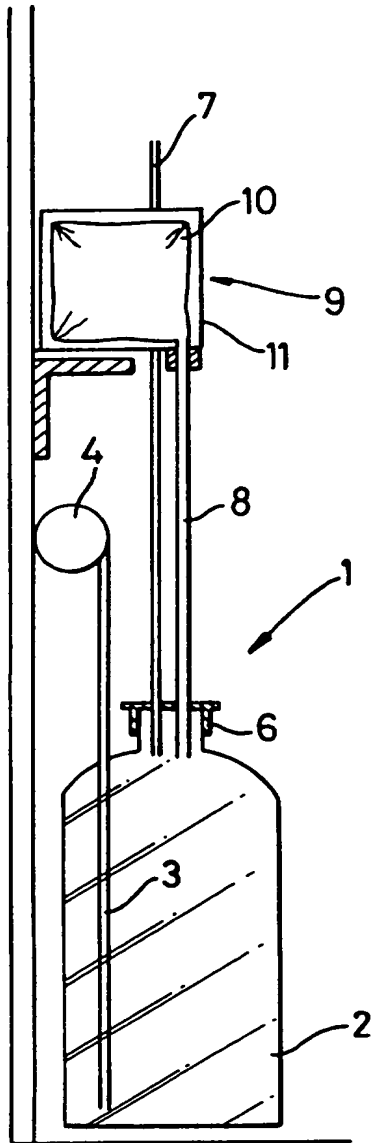
(57) A syrup-dispensing system 1 comprises a reservoir tank 2 of translucent or transparent material, from which syrup can be drawn via a dip tube 3 by a pump 4 and transported to a dispenser tap not shown via a transport tube 5. The reservoir tank 2 is provided with a cap 6 through which extends upwardly a vent tube 7 and a separate syrup supply tube 8. The uppermost end of the syrup supply tube 8 is connected to a collapsible bag 10 filled with syrup and an encasing rigid box 11. The vent tube 7 extends upwardly above the uppermost surface of the rigid box 11. When the syrup-dispensing system 1 is filled to maximum capacity the reservoir tank 2 will be completely filled with syrup and the uppermost syrup surface within the vent tube will be at substantially the same vertical height as the syrup level in the bag-in-box container 9.



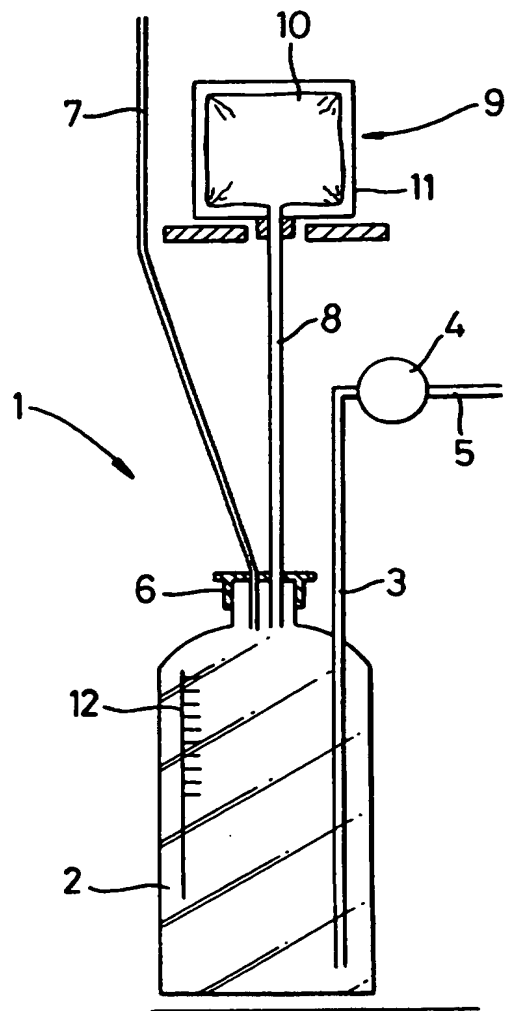
**Fig. 2**

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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*Fig. 1*



*Fig. 2*

**APPARATUS FOR DISPENSING BEVERAGE SYRUPS**

This invention relates to apparatus for dispensing soft drink beverage syrups.

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It has become common practice to supply a beverage syrup in a collapsible foil bag in a rigid box container hereinafter referred to as a bag-in-box container.

10 The commercial systems for mixing the syrup with soda water are known as 'post mix systems'. In these systems a reservoir of carbonated water is created and this is mixed with syrup drawn from a container. The container may be in the form of a tank which is refilled as necessary, a sealed tank which is replaced when empty or a bag-in-box container.

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There has been a move towards bag-in-box container systems as they are easy to use. One problem with the use of bag-in-box container systems is knowing when the syrup is going to run out. One solution to this problem has been to use two bag-in-box containers and an automatic vacuum

20 change-over valve to ensure continuity of supply of syrup.

The syrup is drawn from one bag by a vacuum pump so that as the foil bag within the box collapses and finally empties the level of vacuum increases and the valve operates, so switching the supply to the second bag-in-box

25 container. The problem with this system has been with the valve switching at the wrong time. If the valve switches early, some syrup remains in the first bag and, if it switches late, drinks with little or no syrup are dispensed.

According to one aspect of the present invention we provide apparatus for dispensing beverage syrup comprising a reservoir tank, a container connected to the reservoir tank such that, in use, liquid can be transported from the container to the reservoir, a pump arranged to draw the liquid  
5 from the reservoir tank and vent means to prevent a vacuum forming inside the reservoir tank.

Preferably the container connected to the reservoir tank is a collapsible container in the form of a collapsible bag.

10

Preferably the collapsible bag is located above the reservoir tank such that, in use, the liquid in the bag is gravity fed into the reservoir tank.

Preferably, the vent means is in the form of a tube which extends from the  
15 reservoir tank upwardly above the uppermost surface of the collapsible bag so as to connect the interior of the reservoir tank with atmosphere.

Preferably the reservoir tank is a translucent or transparent material.

20 Preferably the reservoir tank is also provided with liquid monitoring means.

Preferably the liquid monitoring means is a gauge.

25 Preferably the gauge is in the form of a vertical linear scale applied to the surface of the reservoir tank, such that the liquid level within the reservoir may be viewed in relation to the scale.

Preferably the pump is operable to draw the liquid from the lowermost region of the reservoir tank via a dip tube.

Preferably the connection between the container and the reservoir is a detachable connection.

Preferably the liquid monitoring means indicates when the container is empty.

10 The use of a gauge on or with the reservoir will indicate when the bag-in-box container is empty and needs to be changed.

A syrup-dispensing apparatus in accordance with the invention will now be described, by way of example only, with reference to the accompanying drawings in which :

Figure 1 and Figure 2 are schematic views of apparatus for dispensing a beverage syrup according to one embodiment of the present invention.

20 A syrup-dispensing system 1 comprises a reservoir tank 2, the tank being of translucent or transparent material, from which syrup can be drawn via a dip tube 3 by a pump 4 and transported to a dispenser tap not shown via a transport tube 5. The reservoir tank 2 is provided with a cap 6 through which extends upwardly a vent tube 7 and a separate syrup supply tube 8.

25 The uppermost end of the syrup supply tube 8 is connected to a bag 10. A container 9 comprises the collapsible bag 10 filled with syrup and an encasing rigid box 11. Said vent tube 7 extends upwardly above the uppermost surface of the rigid box 11.

When the syrup-dispensing system 1 is filled to maximum capacity the reservoir tank 2 will be completely filled with syrup and the uppermost syrup surface within the vent tube will be at substantially the same vertical height as the syrup level in the bag-in-box container 9.

5

As the syrup is extracted from the reservoir tank 2 by the pump 4 the syrup level within the vent tube will fall.

10 As the syrup is extracted from the reservoir 2 via the dip tube 3, syrup will flow by the effect of gravity from the bag-in-box container 9 via the supply tube 8 into the reservoir 2.

15 If there is a great demand for the syrup and the pump 4 is working regularly then the rate of flow at which the syrup is being extracted from the reservoir 2 may be greater than the rate of flow of syrup into the reservoir 2 from the bag-in-box container 9. The syrup surface level in the vent tube may drop below that in the bag-in-box container.

20 The syrup in the reservoir 2 will continue to be replaced by the syrup in the bag-in-box container 9 until the bag 10 and supply tube 8 are completely empty. When this happens the level of syrup in the reservoir will begin to fall. The level of syrup in the reservoir can now be measured off a gauge 12. The gauge 12 will help to indicate that the bag 10 within the bag-in-box container 9 is empty and requires replacing with a new full bag-in-box  
25 container.

The reservoir 2 should have sufficient capacity to ensure that there is enough syrup to cope with demand between the routine stock checks made by the bar staff.

**CLAIMS**

1. Apparatus for dispensing beverage syrup comprising a reservoir tank,  
a container connected to the reservoir tank such that, in use, liquid can be  
5 transported from the container to the reservoir, a pump arranged to draw  
the liquid from the reservoir tank and vent means to prevent a vacuum  
forming inside the reservoir tank.
2. Apparatus for dispensing beverage syrup according to claim 1,  
10 wherein the container connected to the reservoir tank is a collapsible  
container in the form of a collapsible bag.
3. Apparatus for dispensing beverage syrup according to claim 2,  
wherein the collapsible bag is located above the reservoir tank such that, in  
15 use, the liquid in the bag is gravity fed into the reservoir tank.
4. Apparatus for dispensing beverage syrup according to claims 1, 2 or  
3, wherein the vent means is in the form of a tube which extends from the  
reservoir tank upwardly above the uppermost surface of the collapsible bag,  
20 so as to connect the interior of the reservoir tank with atmosphere.
5. Apparatus for dispensing beverage syrup according to any one of  
claims 1 to 4, wherein the reservoir tank is a translucent or transparent  
material.  
25
6. Apparatus for dispensing beverage syrup according to any one of  
claims 1 to 5, wherein the reservoir tank is provided with liquid monitoring  
means.

7. Apparatus for dispensing beverage syrup according to any one of claims 1 to 6, wherein the liquid monitoring means is a gauge.
8. Apparatus for dispensing beverage syrup according to claim 7,  
5 wherein the gauge is in the form of a vertical linear scale applied to the surface of the reservoir tank, such that the liquid level within the reservoir may be viewed in relation to the scale.
9. Apparatus for dispensing beverage syrup according to any one of  
10 claims 1 to 8, wherein the pump is operable to draw the liquid from the lowermost region of the reservoir tank via a dip tube.
10. Apparatus for dispensing beverage syrup according to any one of  
15 claims 1 to 9, wherein the connection between the container and the reservoir is a detachable connection.
11. Apparatus for dispensing beverage syrup according to any one of  
claims 1 to 10 wherein, in use, the liquid monitoring means indicates when  
the container is empty.  
20
12. Apparatus substantially as hereinbefore described with reference to the accompanying drawings.